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Applicant: Euromed Medical Partners GmbH, 17268 Grand Dölln, DE

[EN] respirator, comprising noise absorbing housing for accommodation of turbine provided with inner layer of foam rubber

[DE] Noise reducing housing for accommodating a turbine

[EN]

The air is suctioned out through a filter (2) into a first chamber, guided into the turbine and released after being compressed into a second chamber. The relation between the position of the outlet at the turbine and the outlet (3) of the second chamber as well as a layer of foam rubber (7) attached to all inner surfaces of the housing (1) results in a remarkable reduction of the noise normally created by the device. The surface of the rubber layer (7) is either flat or ribbed Depending on its position in order to increase the noise absorbing effect.

Noise reducing housing for receiving a turbine

The invention relates to a housing for accommodating a turbine of a ventilator, which is especially suitable for emergency resuscitation. 5 Measure for noise reduction in turbines are well known.

Thus, in DE 28 04 653 A1, a device for cooling and noise insulation of compressors and vacuum pumps directly to a they are the driving electric motor connected as described, constructed using both the compressor and the motor drive liquid tight, so that they can be arranged in a completely sealed container, are the sound-absorbing fluid and a cooling down to a height contains, in the compressor or vacuum pump and drive motor are completely immersed in the liquid, and whose whole outer surface with a sound-absorbing material is provided.

With DE 42 27 543 Cl is in a cleaning device with a suction fan for generating a suction air stream, with this driving and forming a unit with the electric motor, with one receiving the turbine housing and having a turbine and electric motor improves the cleaning device soundproofed which define the bracket noise reduction by the holder, a sleeve made of a thermoset elastomer with a shore hardness between 30 and 60, which surrounds the turbine housing and the outer wall of the housing at least partially flat against, the turbine with the rotational axis of the turbine running in the vertical direction in the cleaning device and the cuff is positioned, the assembly of turbine and engine engages and freely suspended in the cleaning device transmits.

DE 199 04 839 A1 is a compressor plant, preferably known for stationary use, which has a silencer, in which a self-sustaining discharge silencer, a drive motor and a fan speed are arranged with corresponding intake, with the Noise insulation wall having at least one hinged and with a cooling air inlet, a cooling air outlet and an air inlet for conveying Fan level, which requires as a I.

Intake silencer is upstream. According to the drive motor is opposite first end wall of the Cover a bottom-mounted cooling air inlet and the fan speed in the opposite second end wall of an overhead Cooling air outlet arranged, at the first end wall with at least one sound-insulating material lined and airflow repeatedly deflecting and arranged with at least one air inlet and an air outlet air duct tape is first provided. The air outlet the air duct tape is here compared to the lower cooling air inlet of the first side wall.

These well known measures do not meet the specific requirements for respirators. Here is a turbine housing mounted inside the home ventilation devices used in the treatment of sleep apnea syndrome is known. The turbine drive motor is embedded in a rectangular two-chamber housing into the first chamber to smooth Arranged layers of foam.

The air drawn through an intake air is expelled into the second chamber, via guide plates with a large resistance to flow Noise reduction redirected several times, and exits through an outlet from the second chamber.

The air is fed via several turns through a channel, so there is no direct sound transmission between the turbine and outlet there. The disadvantage of this arrangement is a high flow resistance, and thus the power-limiting effect for the same desired outlet air requires a higher engine output.

Thus there is a warming of the engine and the total chamber at a higher power, as may be necessary for emergency resuscitation. While the resulting heating of the breathing air is undesirable.

Such a turbine housing is not used for emergency ventilation, since a significantly higher power reserve is necessary, for example, in the treatment of respiratory distress syndrome. The object of the invention is to provide a noise-dampening housing for a turbine of the power reserve for emergency ventilation features. This problem is solved with the features of claim 1, advantageous embodiments are the subject of the claims.

The inventive sound-a turbine housing for accommodating a ventilator consists entirely of two sealable chambers, both chambers have to all chamber walls, a lining of foam, the first chamber, a Outlet for the drive motor of the turbine and the turbine has at least resiliently mounted in the outlet opening for the drive motor and in the opening that connects the chambers. The first chamber in which the turbine is located, has an intake for air and The compressed air from the turbine is discharged into the second chamber, an outlet from where they feed into an air hose to Patient arrives.

In a preferred embodiment, the lining of the second chamber from nubby foam. It is also provided that the lining of the first chamber from the intake of a turbine is napped foam.

In a further advantageous embodiment provides that the outlet from the turbine into the opening between the two chambers outlet is arranged and added to the outlet from the second chamber to the side of the chamber. By means of the insulation Convoluted foam air guide channels are not necessary to have a high resistance to flow.

By positioning the engine outside of the flow chamber can be formed independently operating heat derived from the respiratory air flow be.

An embodiment of the invention is shown in the drawing. In the drawings:

1, the open side view of the housing 2, the open top view and Figure 3 is a more open side view. The housing illustrated in Figures 1-3 with one intake and two outlet 3 has two chambers 4, 5, 11 on the opening interconnected. Both chambers 4, 5 have made to all chamber walls, a lining 7 Foam. There is the lining of the chamber 7 5 completely nubby foam 7.2 For the duration of the chamber 4 only to the intake of the turbine 6, a liner 7 from nubby foam has 7.2.

Otherwise there is a lining of smooth 7.1 foam provided. In a preferred embodiment, the lining 7 of the chamber 5 is configured as a plug, possibly even with an additional own housing, which is then placed sound-insulated from the housing walls of the chamber 5.

The turbine 6 is disposed in the chamber 4, wherein the drive motor 10 of the turbine 6 from the housing 1 through an outlet opening 9 after protrudes outward.

The drive motor 10 and thus the turbine 6 is elastically supported in the outlet opening, preferably with a rubber cuff 12<sup>th</sup>. The outlet 14 from the turbine 6 is arranged in the area of the chambers 4, 5 connecting opening 11 and also supports the turbine 6 elastically.

The elastic mounting of the turbine 6 in the outlet opening 9 in the opening 11 and prevent the transmission of the vibrations of the turbine 6 to the first case. The air is sucked through the intake and the filter 8 in the chamber 4, the middle one enters into the turbine 6, is compressed and exits via the outlet 14 of the turbine 6 in the chamber 5. Due to the lateral offset between the outlet 14 of the turbine 6 and the outlet 3 the chamber 5 and 7 of the chamber to the notched liner 5 is achieved a further significant noise reduction without large by Flow resistance affects performance.

#### LIST OF REFERENCES housing

- 1 intake
- 2 outlet
- 3 chamber
- 4 chamber
- 5 turbine
- 6 foam lining
- 7 straight
- Knobbed 7.1
- 7.2 Filter
- 8 outlet for the drive motor
- 9 Drive Motor
- 10 opening between the chambers
- 11 rubber sleeve
- 12 turbine intake
- 13 turbine outlet
- 14

#### Claims

1st Noise reducing housing for receiving a turbine of a ventilator, consisting entirely of two lockable compartments, the first chamber has an intake for air and takes up the turbine and the compressed air delivered into the second chamber is where it is distributed via an outlet in an air supply tubing to the patient, wherein both chambers (4, 5) have a lining on all walls of the chamber (7) made

of foam, the first chamber (4) an outlet opening (9) for the drive motor (10) of the turbine (6) holds and the turbine (6) stored at least elastic in the outlet opening (9) for the drive motor (10) and in the Opening (11), which connects the chamber (4) with the chamber (5).

2nd Noise-dampening housing of claim 1, wherein the lining (7) of the chamber (5) from nubby foam (7.2) exists.

3rd Noise-dampening housing of claim 1 or 2, characterized in that the lining (7) of the chamber (5) as an insert in the chamber (5) is formed.

4th Noise-after housing one of claims 1 to 3, wherein the outlet (14) from the turbine (6) in the opening (11) between the chambers (4) and (5) is arranged and the outlet (3) from the chamber (5) to offset laterally from the chamber (5) exits.

5th Noise-Housing according to one of claims 1 to 4, wherein the liner (7) of the chamber (4) compared to the inlet port (13) the turbine (6) a dimpled liner (7.2).

6th Noise-dampening housing of claim 1 to 5, wherein that is arranged in the outlet opening (9) for the drive motor (10) a rubber sleeve (12) through which the drive motor (10) put is.

7th Noise-dampening housing of claim 1 to 6, wherein the chamber (4) off the mouth of Suction pipe (2) a filter (8) is arranged.